

**Annual Land-Use Covenant
Inspection Report for DOE Areas
at the Laboratory for Energy-
Related Health Research/Old
Campus Landfill Superfund Site
University of California, Davis**

January 2013



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Abbreviations

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOE	U.S. Department of Energy
EH&S	Environmental Health and Safety
Hunter	Hunter Surveying Inc.
LEHR	Laboratory for Energy-Related Health Research
LUC	land-use covenant
ROD	Record of Decision
UC Davis	University of California, Davis

1.0 Introduction

This report documents the implementation of land-use controls selected by the U.S. Department of Energy (DOE) to control exposure to residual soil contaminants at the Laboratory for Energy-Related Health Research/Old Campus Landfill Superfund Site (LEHR site) located at the University of California, Davis (UC Davis) (Figure 1). By controlling the land use at the site, DOE meets the requirement of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) to protect human health and the environment from any potential effects of the contamination remaining at the DOE areas at the LEHR site. The selection of land-use controls for eight sub-areas at LEHR is documented in the *Record of Decision for DOE Areas at the Laboratory for Energy-related Health Research, University of California, Davis* (ROD) (DOE 2009). Implementation details are provided in the *Remedial Design/Remedial Action Work Plan for the Former Laboratory for Energy-Related Health Research Federal Facility, University of California, Davis* (DOE 2010).

The following land-use controls apply to the DOE areas shown on Figure 2:

- Prohibition against residential and agricultural use of the Domestic Septic System 4 area.
- Implementation of the Soil Management Plan in areas identified on Figure 2. (For more information about the Soil Management Plan, see the *Remedial Design/Remedial Action Work Plan* [DOE 2010].)
- Access to areas identified on Figure 2 for the purpose of collecting samples and maintaining groundwater monitoring wells.
- Prohibition against interference with the groundwater monitoring system.

These controls shall be maintained until the concentrations of contaminants in the soil are at or below cleanup levels specified in the ROD.

1.1 Reporting Requirement

In accordance with Section 2.4 of the *Remedial Design/Remedial Action Work Plan*, DOE agreed to prepare a written land-use covenant inspection report annually. Reporting was scheduled to begin in 2012 in accordance with Figure 6-1 of the *Remedial Design/Remedial Action Work Plan*. The report is to include the following information:

- Annual land-use covenant inspection results and results of inspections conducted to comply with the requirements of the Soil Management Plan;
- A certification attesting to the compliance of the terms and conditions of the land-use covenant; and
- A discussion of soil-disturbing activities and the final disposal of any wastes generated, any violations of the land-use covenant, and any action taken to ensure compliance with the land-use covenant.

The report is to be submitted annually within 30 days of the anniversary date of the ROD signature date (December 10, 2009), with the first report due in January of 2013.

The report is to be submitted to the United States Environmental Protection Agency Region 9, the California Regional Water Quality Control Board Central Valley Region, the California Department of Toxic Substances Control, and the California Department of Public Health, Radiologic Health Branch.

1.2 Period Covered

This report is the first land-use covenant report prepared by DOE and covers the period from December 10, 2009, to December 9, 2012.

1.3 Activities Conducted During Reporting Period

A brief description of the activities conducted by DOE during the reporting period is provided herein. Updates to the schedule will be included in each annual land-use covenant report to show completed milestones and changes.

In November 2010, the *Remedial Design/Remedial Action Work Plan* was adopted. It contained requirements for long-term groundwater monitoring in the DOE areas and methods for implementing land-use controls specified in the ROD. The implementation of the land-use controls began in 2011 and included:

- Installation of anti-tampering plaques on groundwater monitoring wells;
- Land survey and installation of monuments to mark areas subject to land-use controls; and
- Preparation of a land-use covenant to be recorded by Solano County.

1.3.1 Controls for Groundwater Monitoring Wells

DOE attached anti-tampering plaques and tags on all twelve wells in the monitoring program. Each plaque and tag has a monitoring well identifier and a statement that destruction of or tampering with the well is prohibited. The plaques and tags have a telephone number to call for information. On March 8, 2011, Hunter Surveying Inc. (Hunter) surveyed the coordinates and elevations of all twelve wells in the monitoring program.

1.3.2 Identification of Areas Subject to Land-Use Controls

From January 31 to February 18, 2011, 24 brass monuments were installed at the DOE areas to provide permanent reference points for areas subject to land-use controls, including areas that might be used for future remediation support. The monuments are 2-inch diameter brass caps installed on #5 (5/8-inch diameter) steel rebar inserted to 30 inches below grade. The caps are stamped "CERCLA Land Use Control, US DOE, No Tampering, LS7722", where LS7722 is the land surveyor's license number. The surveyor imprinted a mark near the center of each monument to record the point from which the survey was taken. All monuments and corner points were surveyed and legal descriptions were drafted for each land-use control area and remediation support area. A four-part plat map of the subject areas was also prepared. The legal descriptions and plat map will be included in a land-use covenant (LUC) prepared by the Department of Toxic Substances Control. The LUC is expected to be recorded in 2013.

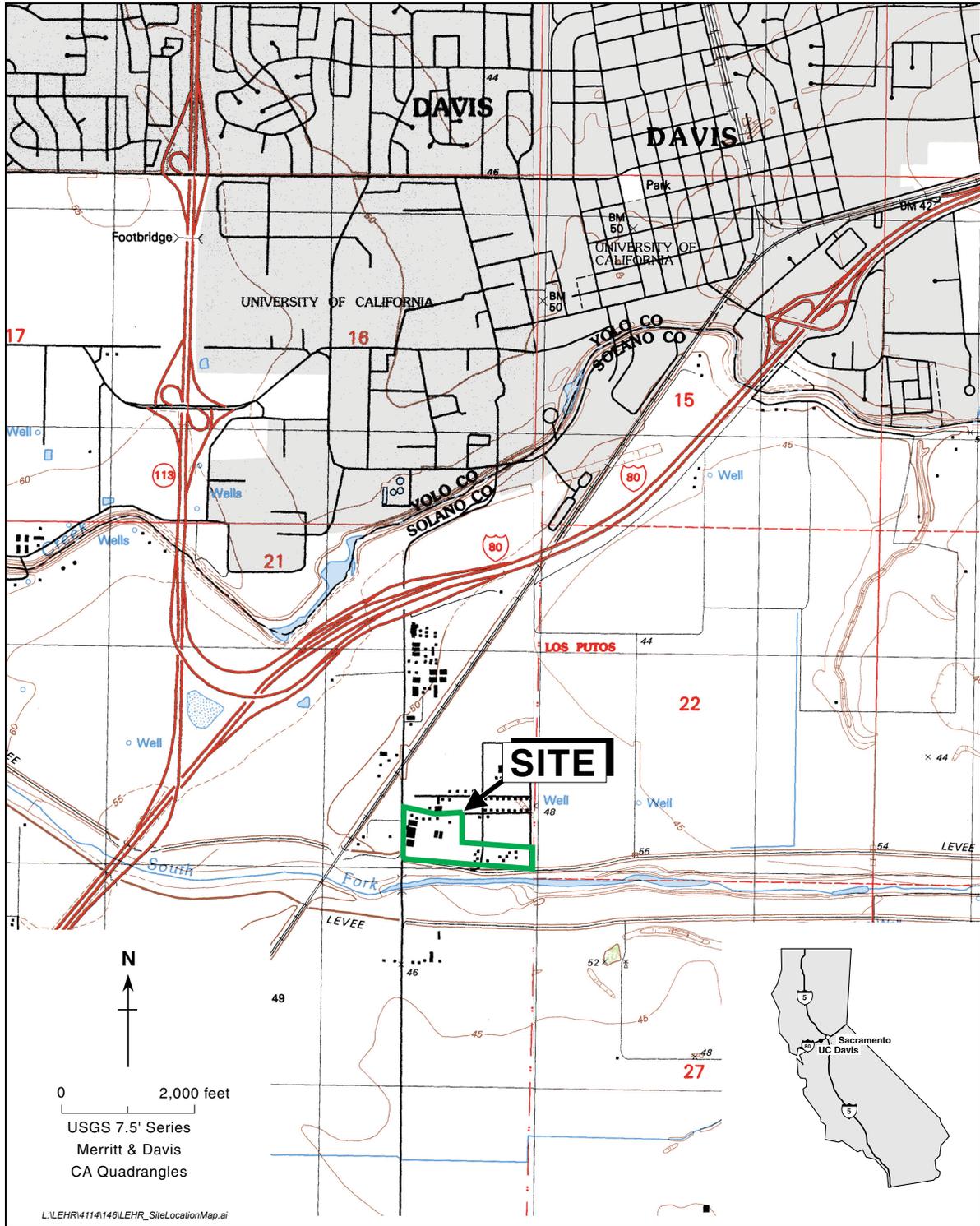


Figure 1. Location of the LEHR Site, UC Davis, Solano County, California

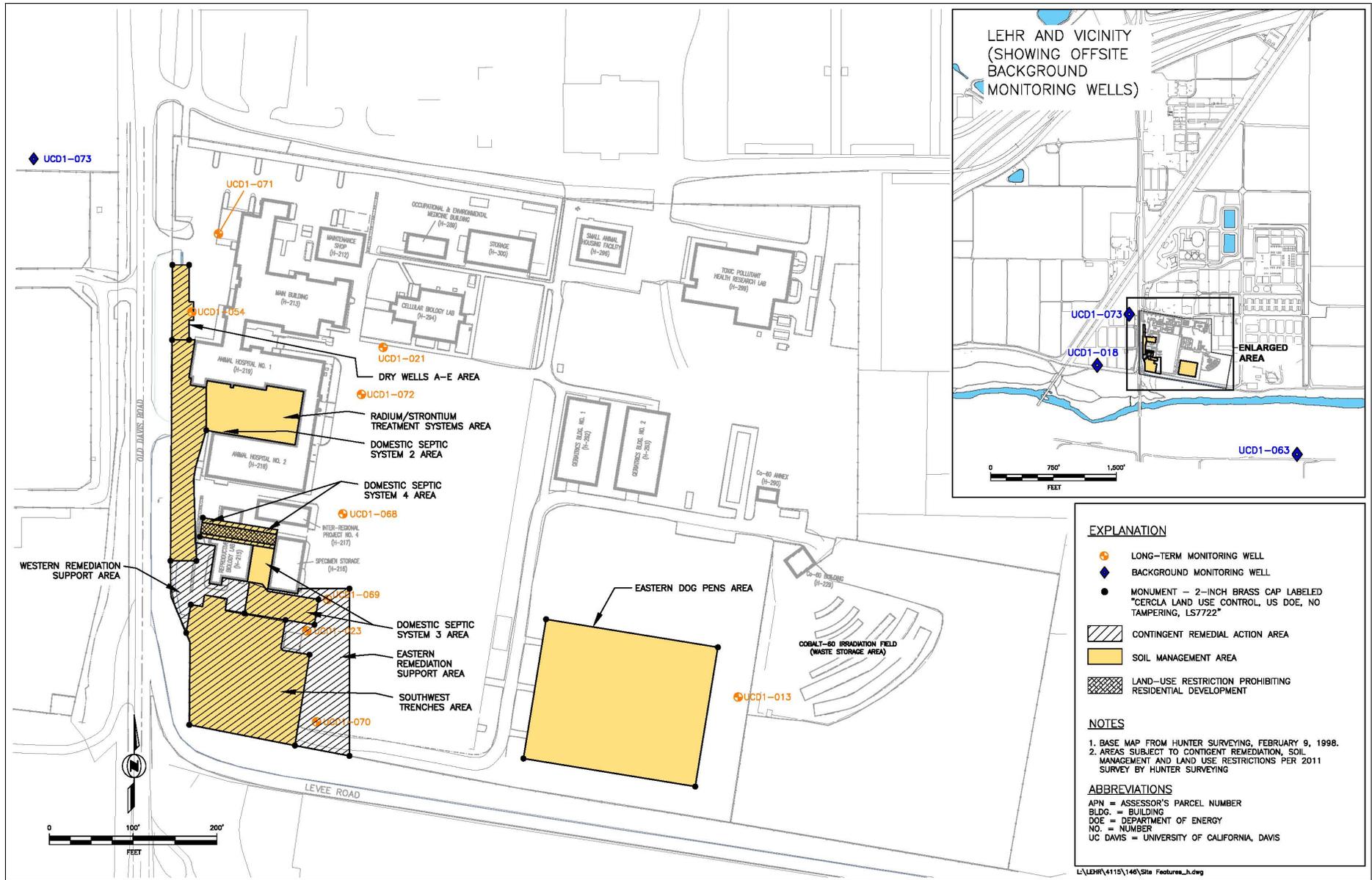


Figure 2. DOE Areas of the LEHR Federal Facility Subject to Land-Use Controls

2.0 Inspections

Inspections of the DOE areas subject to land use controls were conducted on February 23–24, March 19–20, and April 5, 2012. No actions were warranted as result of these inspections.

2.1 Inspections of DOE Areas Subject to Land-Use Controls

On March 19–20, 2012, Kian Atkinson of Weiss Associates performed a walk-through inspection of monuments installed to identify select corner points of the areas subject to land-use controls. The monuments (except M11) were confirmed to meet the requirements specified in Section 1.3.2. Monument M11 installed at the northeast corner of the Eastern Remediation Support Area (Figure 2) was not initially found because it was obscured by vegetation. The land surveyor subsequently located the monument and installed a temporary stake and flag to mark its location. On April 10, 2012, Kian Atkinson performed a walk-through inspection of monument M11. M11 was found to be in good condition and labeled properly. Photographs of the monuments are provided in Appendix A.

2.2 Inspections of DOE Areas for Compliance with Soil Management Plan Requirements

On March 19–20 and April 5, 2012, Kian Atkinson of Weiss Associates performed a walk-through inspection of DOE areas subject to land-use controls to look for signs of soil disturbance. No indication of soil disturbance was observed. Photographs documenting these inspections are provided in Appendix B.

2.2.1 Soil Management Compliance Interview

On December 17, 2012, Tim Utterback of Weiss Associates interviewed Jim Aborn of the UC Davis Environmental Health and Safety (EH&S) Unit to determine whether EH&S was aware of any soil soil-disturbing activities within the DOE areas subject to land-use controls. Jim Aborn reported that no soil disturbing activities have occurred within the DOE areas subject to land-use controls during the reporting period.

2.2.2 Inspections of Soil-Disturbing Activities

During this reporting period, no soil-disturbing activities occurred within the DOE areas subject to land-use controls; consequently, no inspections were required to comply with the requirements of the Soil Management Plan (DOE 2010).

2.3 Inspections of Groundwater Monitoring Wells

On February 23–24, 2011, Mick Box and Kian Atkinson of Weiss Associates performed a walk-through inspection of groundwater monitoring wells UCD1-068, UCD1-069, UCD1-070, UCD1-071, UCD1-072, and UCD1-073 incidental to placement of identification plaques on these wells. No actions resulted from these inspections. On March 19–20, 2012, Kian Atkinson of Weiss Associates performed a walk-through inspection of these same wells (UCD1-068 through -073) along with wells UCD1-013, -018, -021, -023, -054, and -063. All of the wells were found to be in good condition. Minor rust was observed on the inner surfaces of “stove

pipe” completions of wells UCD1-063 and UCD1-073. The rust was not affecting the integrity of the well completions at the time of the inspection. If continued corrosion is observed and found to affect the integrity of the well components, these components will be replaced. Plaques on wells UCD1-068, -069, -070, -071, -072, and -073 were in good condition. Wells UCD1-013, -018, -021, -023, -054, and -063 did not have plaques when inspected in March 2012.

On December 7 and 13, 2012, Chris Morash of Weiss Associates installed plaques on wells UCD1-013, -018, -021, -023, -054, and -063 and performed a walk-through inspection of all 12 wells. The wells and identification plaques were in good condition.

Photographs documenting the inspections of the groundwater monitoring wells are provided in Appendix C.

3.0 Soil Management Plan Implementation

In accordance with an agreement with DOE, the EH&S Unit at UC Davis is responsible for implementation of the Soil Management Plan (DOE 2010).

3.1 Training

The EH&S Unit is responsible for conducting annual training to communicate soil management requirements to appropriate units performing or contracting work, and for ensuring that these requirements are implemented.

This annual training and oversight has been to this point conducted in an informal but effective manner, as formal institution-wide policies and procedures are developed and approved and the differing work unit scheduling systems controls are integrated. The DOE soil management areas have been integrated into the campus-wide geographic information system (GIS) system (see the map in Figure 3) that is accessed when any work is scheduled. All internal work units are aware of the need to coordinate with EH&S on any project at the entire LEHR site, as is the campus real estate division, which receives and processes work requests from outside the university.

The EH&S unit has begun implementation of the formalized annual training to the appropriate units, and is scheduled to complete this during the first quarter of 2013. The training covers the following points:

- Roles and responsibilities
- Areas and contaminants subject to soil management requirements
- Soil management during excavation or construction
- Permits for soil disturbing activities
- Plans and documentation
- Soil management during emergency work
- Waste management
- Waste characterization and disposal
- Inspections

3.2 Soil-Disturbing Activities

Based on the site inspections and interview documented in this report, no soil-disturbing activities (routine or emergency) occurred in any of the DOE areas subject to the requirements of the Soil Management Plan (DOE 2010) during the reporting period covered by this report; consequently, no permits for soil disturbance were issued.

A request in November 2011 from the California Department of Water and Power to drill geotechnical borings in the DOE Southwest Trenches as part of a levee inspection project was referred from the UC Davis real estate group to the EH&S unit, which coordinated with the Department of Water and Power to relocate its borings further east outside of the DOE soil management area.

All new wells (UCD1-068, -069, -070, -071, -072, and-073) were installed outside the DOE areas subject to the requirements of the Soil Management Plan (DOE 2010).

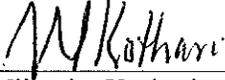
3.3 Soil Disposal

Based on the site inspections and interview documented in this report, no soil from DOE areas subject to the requirements of the Soil Management Plan (DOE 2010) was disposed of during the reporting period covered by this report.

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4.0 Certification

The United States Department of Energy hereby certifies to the best of its knowledge that the information contained in this inspection report is true and accurate and no exceptions to the land-use covenant terms and conditions occurred during this reporting period.



Date: 1/9/2013

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5.0 References

DOE (U.S. Department of Energy), 2009. *Record of Decision for DOE Areas at the Laboratory for Energy-Related Health Research, University of California, Davis*, LMS/LEH/S05069, September.

DOE (U.S. Department of Energy), 2010. *Remedial Design/Remedial Action Work Plan for the Former Laboratory for Energy-Related Health Research Federal Facility, University of California, Davis*, LMS/LEH/S05822, November.

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Appendix A

Photographs of Monuments at Permanent Reference Points for Areas Subject to Land-Use Controls

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*Monument 1, northwest corner of
Dry Wells A-E Area*



*Monument 2, northeast corner of
Dry Wells A-E Area*



*Monument 3, southwest corner of
Dry Wells A-E Area*



*Monument 4, southeast corner of
Dry Wells A-E Area*



Monument 5, northwest corner of Domestic Septic System 4



Monument 6, adjacent to northwest corner of Building H-218; R44adium/Strontium Treatment Systems Area



Monument 7, southwest corner of Domestic Septic System 4



Monument 8, southwest corner of radium-226 leach trench; Radium/Strontium Treatment Systems Area



Monument 9, southeast corner of radium-226 leach trench; Radium/Strontium Treatment Systems Area



Monument 10, northeast corner of former leach field in Domestic Septic System 3 Area



Monument 11, northeast corner of Eastern Remediation Support Area; staked to help locate monument within Former Western Dog Pens Area vegetation



Monument 12, northwest corner of Southwest Trenches Area



Monument 13, southwest corner of Domestic Septic System 3, at northern perimeter of Southwest Trenches Area



Monument 14, southeast corner of Domestic Septic System 3



Monument 15, eastern corner of Southwest Trenches Area



Monument 16, southwest corner of Southwest Trenches Area



Monument 17, southeast corner of Southwest Trenches Area



Monument 18, southeast corner of Eastern Remediation Support Area



Monument 19, northwest corner of Eastern Dog Pens Area



Monument 20, northeast corner of Eastern Dog Pens Area



Monument 21, southwest corner of Eastern Dog Pens Area



Monument 22, southeast corner of Eastern Dog Pens Area



Monument 23, western perimeter point of Southwest Trenches Area



Monument 24, northeast corner of Southwest Trenches Area, at southern perimeter of Domestic Septic System 3

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Appendix B

Photographs of DOE Areas Subject to Land-Use Controls

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View southeast over Southwest Trenches Area. Well UCD1-070 and north levee in background.



View east over Southwest Trenches Area. Storage shed to left; north levee to right; Western Dog Pens Area and UC Davis Southern Trenches Area in background.



View northeast over northern portion of Southwest Trenches Area. Domestic Septic System 3 Area and Building H-216 in background.



View south over Southwest Trenches Area. North levee in background; shoulder of Old Davis Road to right.



View west over Southwest Trenches Area. UC Davis Southern Trenches area in foreground; South perimeter fence to left; Shoulder of Old Davis Road in background.



View east over southern-most part of Domestic Septic System 3 Area and northern-most part of Southwest Trenches Area. Storage unit and Western Dog Pens Area in background.



View west over former leach field part of Domestic Septic System 3 Area. Buildings H-215 and H-216 to right; Southwest Trenches Area to left; Shoulder of Old Davis Road in background.



Wider view west over former leach field part of Domestic Septic System 3 Area. Western Dog Pens Area in foreground; Buildings H-215 and H-216 to right; Storage shed to left; Shoulder of Old Davis Road in background.



View south over east end of Domestic Septic System 3 Area former leach field. Storage shed to left; Southwest Trenches Area in background.



View south over septic tank part of Domestic Septic System 3 Area. Building H-216 to left; Building H-215 to right; Southwest Trenches Area in background.



View southeast over septic tank part of Domestic Septic System 3 Area. Building H-216 in background.



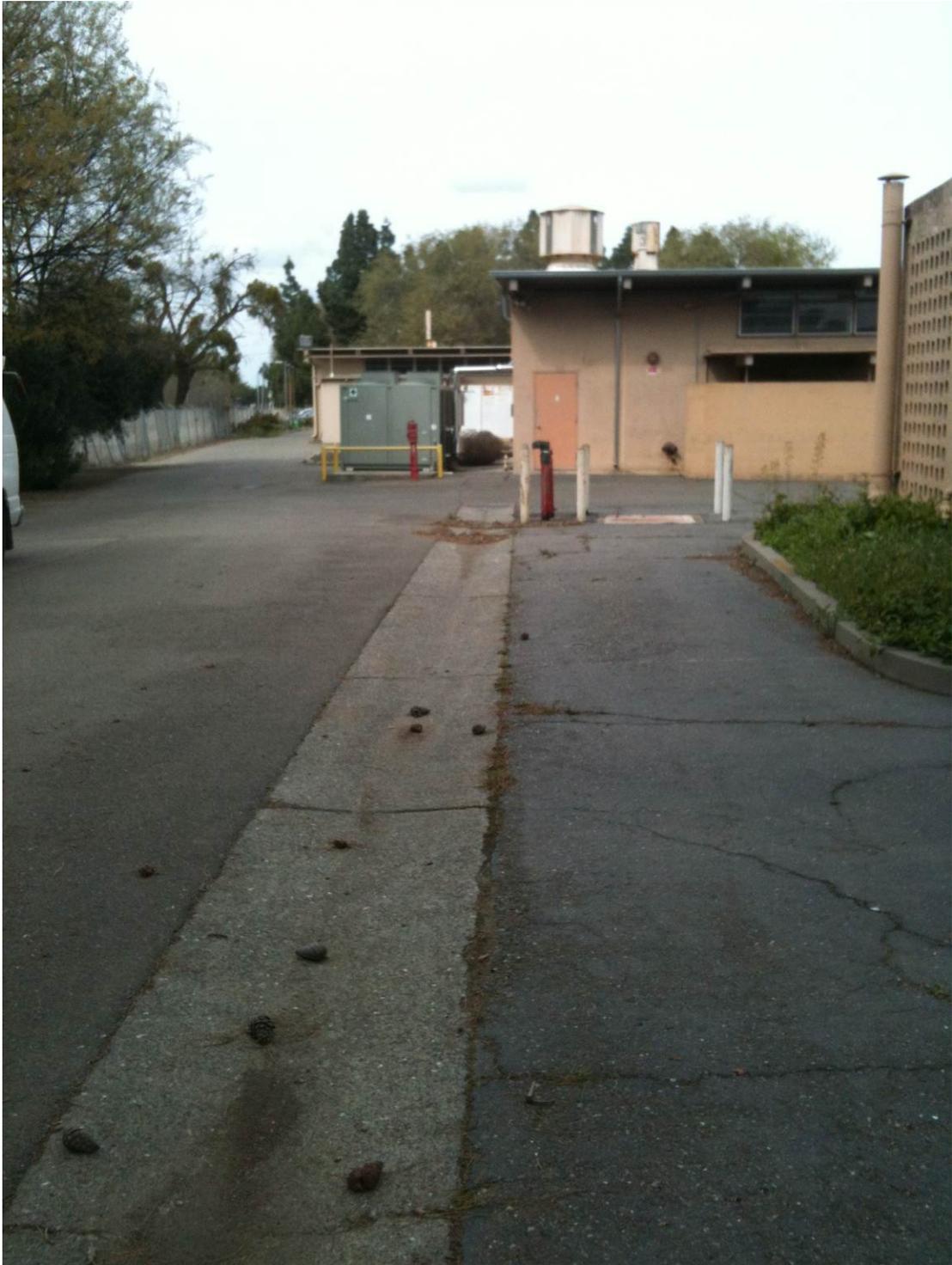
View north over Domestic Septic System 4 septic tank location and east end of leach field. Building H-215 to left; Building H-216 to right; Building H-217 in background.



View east over western portion of Domestic Septic System 4 Area and west face of Building H-215.



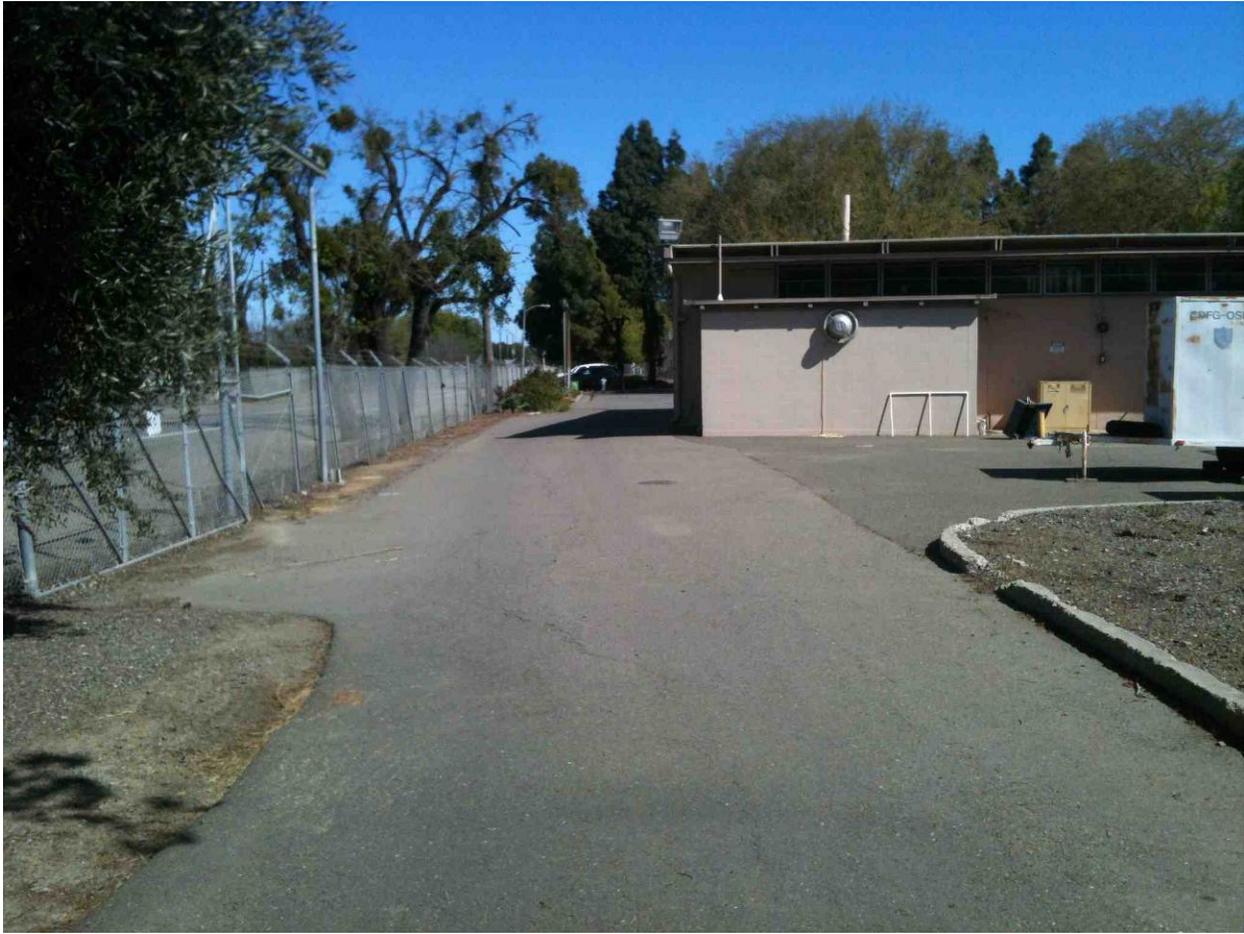
View southwest over western portion of Domestic Septic System 4 Area (foreground); Southern portion of Radium/Strontium Treatment Systems Area (middle); Old Davis Road (background).



View north over western portion of Domestic Septic System 4 Area and southern portion of Radium/Strontium Treatment Systems Area. Building H-215 to far right; Buildings H-218 and H-219 center/back.



View south over southern portion of Radium/Strontium Treatment Systems Area. West perimeter fence to right; Old Davis Road to far right.



View north over middle-west portion of Radium/Strontium Treatment Systems Area. Building H-219 to right; west perimeter fence to left.



View southeast over south-middle portion of Radium/Strontium Treatment Systems Area and Building H-218.



View east over middle portion of Radium/Strontium Treatment Systems Area. Building H-219 in left foreground; Building H-218 in far right background.



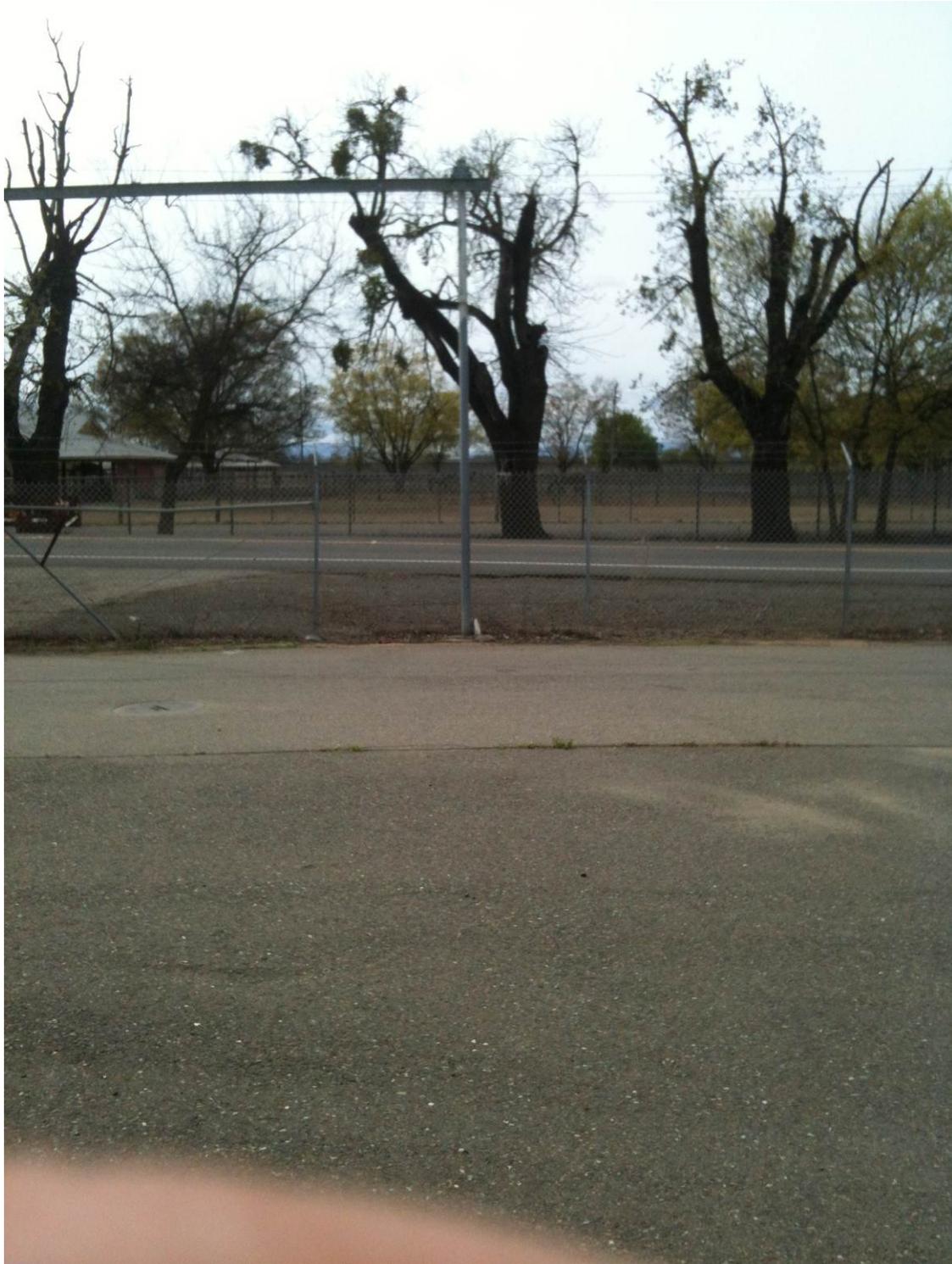
View east over middle portion of Radium/Strontium Treatment Systems Area. Building H-218 to right; Building H-219 to left.



Alternate view east over middle portion of Radium/Strontium Treatment Systems Area. Building H-218 to right; Building H-219 to left.



Roof-level view west over middle portion of Radium/Strontium Treatment Systems Area. Building H-219 to right; Building H-218 to left; Old Davis Road in background.



View west over middle-west portion of Radium/Strontium Treatment Systems Area, west perimeter fence, and Old Davis Road.



View north over northern portion of Radium/Strontium Treatment Systems Area. West perimeter fence to left; Corner of building H-219 to right; Main building H-213 in background right.



View south over Dry Wells A through E Area. Main Building H-213 to left; Entrance gate to right; Building H-219 in background.



View southwest over Dry Wells A through E Area. Site entrance to right; Old Davis Road in background.



View south over Eastern Dog Pens Area. North levee in background.



View north over Eastern Dog Pens Area. Buildings H-293 and H-299 in background.



View north over Eastern Dog Pens Area from north levee.



View west over southern portion of Eastern Dog Pens Area. Shoulder of Old Davis Road in far background.



View east over southern portion of Eastern Dog Pens Area and UC Davis Waste Burial Holes Area. South perimeter fence and levee to right.



View southeast over Eastern Dog Pens Area from northwest corner. North levee in background.



View southwest over Eastern Dog Pens Area from northeast corner.

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Appendix C

Photographs of Groundwater Monitoring Wells

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Well UCD1-013



Well UCD1-018



Well UCD1-021



Well UCD1-023



Well UCD1-054



Well UCD1-063



Well UCD1-068



Well UCD1-069



Well UCD1-070



Well UCD1-071



Well UCD1-072



Well UCD1-073